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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,002	03/31/2004	Chih-Kuang Chen	SUND 506	5214
23995 7590 07/17/2007 RABIN & Berdo, PC 1101 14TH STREET, NW SUITE 500 WASHINGTON, DC 20005			EXAMINER AMADIZ, RODNEY	
			ART UNIT 2629	PAPER NUMBER
			MAIL DATE 07/17/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/813,002	CHEN, CHIH-KUANG	
	Examiner	Art Unit	
	Rodney Amadiz	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7 and 8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4, 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (U.S. Patent 5,479,187—hereinafter “Chen”) in view of Hisatoshi (JP03-058012—hereinafter “Hisatoshi”).

As to **Claim 1**, Chen teaches a liquid crystal display comprising: a scan driver circuit for outputting a scan activating signal (***Figs. 1 and 2, Reference Number 43***); a liquid crystal display panel for receiving the scan activating signal to generate a frame display frequency accordingly (***Col. 3, line 50—Col. 4, line 25***); a rotation speed control circuit for receiving a scan activating signal to control a rotation speed of a motor accordingly (***Fig. 3, Reference Number 26 and Col. 5, lines 7-33—note motor is inherent to spin reflector***); a polygonal column reflector connected to the motor for synchronizing with the rotation of the motor using the center line of the column of the polygonal column reflector as an axis of rotation (***See Figs. 3-9, Reference Numbers 22 (Reference Number 36 for Figs. 7-9)***, wherein the rotation speed of the polygonal column reflector corresponds to the frame display frequency(***Col. 5, lines 22-33***), the polygonal column reflector having a plurality of reflecting side faces which sequentially reflect the light of a light source onto the liquid crystal display panel along with the

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rotation of the polygonal column reflector (**Fig. 3, note multi-faceted reflecting faces 22a-22f and Col. 4, lines 47-55**); wherein the reflected light of each of the reflecting side faces scans the liquid crystal display panel from one end of the liquid crystal display panel to one opposite end of the liquid crystal display panel along with the rotation of the polygonal column reflector so that light required for each frame display is provided (**Col. 5, line 54—Col. 6, line 25**). Chen, however, fails to teach a plurality of light absorbing materials disposed at the junction of every two adjacent reflecting side faces of the reflecting side faces. Examiner cites Hisatoshi to teach a plurality of light absorbing materials disposed at the junction of every two adjacent reflecting side faces of the reflecting side faces (**Hisatoshi—Constitution**). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to include light absorbing materials at the junction of every two adjacent reflecting side faces of the polygon mirror as taught by Hisatoshi in the polygonal column reflector taught by Chen in order to prevent against irregular reflections when the light shines on the edges of the polygonal column reflector (**Hisatoshi—Constitution**).

As to **Claim 2**, Chen teaches the polygonal column reflector further comprising a column body with a plurality of body side faces (**See Fig. 3, Reference Number 22 and faces 22a-22f**); and a plurality of reflecting materials disposed onto the body side faces, respectively (**Col. 9, lines 54-57**).

As to **Claim 4**, Chen teaches that the reflecting materials are a plurality of reflecting mirrors (**Col. 9, lines 54-57**).

As to **Claim 5**, Chen fails to teach a hollow column body. However, the specification shows no apparent benefits for having the column body with a hollow inside. Therefore, having the column body being hollow is clearly a design choice based on the specific requirement of the claim. Furthermore, it would have been obvious to one of ordinary skill in the art to include any type of column body, including a column body that is hollow inside, into the liquid crystal display taught by Chen since any column body would work well at rotating the reflecting materials.

As to **Claim 8**, all of the limitation have already been discussed with respect to claim 1 with the exception of the liquid crystal display comprising a plurality of rotation speed control circuits and a plurality of polygonal column reflectors. Chen only teaches one rotation speed control circuit and one polygonal column reflector. Chen fails to teach a plurality of rotation speed control circuits and a plurality of polygonal column reflectors. Examiner cites *St. Regis Paper Co. v. Bemis Co., Inc.*, 193 USPQ 8, 11 (7th Cir. 1977) to teach that it is well known and obvious to duplicate parts for a multiplied effect. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to provide a plurality of rotation speed control circuits and a plurality of polygonal column reflectors in the liquid crystal display taught by Chen to create a brighter display as supported by the case law stated above.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen and Hisatoshi as applied to claims 1, 2, 4, 5 and 8 above, and further in view of Ang (U.S. Patent 5,126,873—hereinafter “Ang”).

As to **Claim 3**, Chen, as modified by Hisatoshi, fails to teach that the reflecting materials are a plurality of aluminum slices. Examiner cites Ang to teach a polygonal reflector made of aluminum (**Col. 4, lines 17-18**). At the time the invention was made it would have been obvious to a person of ordinary skill in the art to provide aluminum slices as taught by Ang in the polygonal column reflector taught by Chen, as modified by Hisatoshi, in order to provide a reflector that is durable.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen and Hisatoshi as applied to claims 1, 2, 4, 5 and 8 above, and further in view of Yamagishi et al. (U.S. Patent 6,511,184—hereinafter “Yamagishi”).

As to **Claim 7**, Chen, as modified by Hisatoshi, fails to teach a convex lens disposed between the light source and the polygonal column reflector for focusing the light from the light source onto the reflecting side faces. Examiner cites Yamagishi to teach a convex lens disposed between the light source and the polygonal column reflector for focusing the light from the light source onto the reflecting side faces (**Fig. 1, Reference Numbers 210R, 210B, 210G**). At the time the invention was made it would have been obvious to a person of ordinary skill in the art to incorporate the use of a convex lens disposed between the light source and the polygonal column reflector as taught by Yamagishi in the liquid crystal display taught by Chen, as modified by Hisatoshi, in order to focus the light from the light source on the reflector (**Yamagishi—Col. 11, lines 47-65**).

Response to Arguments

5. Applicant's arguments with respect to claims 1 and 8 have been considered but are moot in view of the new ground(s) of rejection.

Inquiries

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney Amadiz whose telephone number is (571) 272-7762. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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